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| 10/800,637 | 03/16/2004 | Takashi Yashiki | 250268US | 1131 |

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| EXAMINER |
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MORILLO, JANEL COMBS

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| ART UNIT | PAPER NUMBER |
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1742

| SHORTENED STATUTORY PERIOD OF RESPONSE | NOTIFICATION DATE | DELIVERY MODE |
|--|-------------------|---------------|
| 3 MONTHS | 02/28/2007 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/28/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/800,637

Applicant(s)

YASHIKI, TAKASHI

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6 and 12-19 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 12-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 21, 2006 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4, 5, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over XP'686 and teaching reference "ASM Handbook: Vol. 2" p 1169 and further in view of JP10-008234 (JP'234).

XP'686 teaches a high purity Ti alloy with 0.009% Fe max (see Table on bottom of 1st page). XP'686 does not mention the presence of Co or Nb, and therefore is held to teach substantially zero Co and Nb. XP'686 is drawn to a high purity titanium alloy also known as "iodide Ti" or "electrolytic Ti" (see XP'686, 1st paragraph), and though XP'686 does not specify the limits of Nb, and Co, the examiner points out that "ASM Handbook Vol. 2" p 1169 mentions that "iodide Ti" or "electrolytic Ti" have (strict) known impurity limits of Fe, Si, Ca, Cu, Mg,

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Mn, Sn, Zr, C, O, N, and Cl, with a balance consisting of Ti (see Table 49, all the elements added together =100.000 %). Nb and Co are not expected to be impurities of the high purity electrolytic Ti alloy taught by XP'686. Therefore, the combination of XP'686 and teaching reference "ASM Handbook Vol. 2" teach an overlapping alloy composition. Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility. Additionally, "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages," In re Peterson, 65 USPQ2d at 1379 (CAFC 2003).

Concerning the limitation of an oxide film, XP'686 teaches the formation of a thin film is optional (see XP'686 1st column, "corrosion resistance"), and when desired, is formed by heating in air at temperatures >315°F (>157°C), which overlaps the presently claimed product by process heating temperature. Additionally, JP'234 teaches a method of forming an oxide coating on a titanium alloy in order to prevent discoloration, wherein said oxide coating has a thickness of $\geq 20 \text{ \AA}$ (see examples, abstract), which overlaps the presently claimed limit of 170 Å or below. It would have been obvious to one of ordinary skill in the art to form an oxide layer, as taught by JP'234, on the high purity Ti alloys taught by XP'686, because JP'234 teaches that said thin oxide layer prevents discoloration for a long period of time (abstract).

Concerning the instant pickling step and heating time minimum (cl.1) as well as heating without a vacuum (cl. 19), though the prior art does not specify the instant product by process

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steps, it is well settled that a product-by-process claim defines a product, and that when the prior art discloses a product substantially the same as that being claimed, differing only in the manner by which it is made, the burden falls to applicant to show that any process steps associated therewith result in a product materially different from that disclosed in the prior art. See MPEP 2113, *In re Brown* (173 USPQ 685) and *In re Fessman* (180 USPQ 524) *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292.

Concerning claims 17 and 18, XP'686 does not specify said high purity Ti alloy is used as an external wall or reinforcing member of a building. However, XP'686 teaches that said alloy is processed into sheet, and has a minimum YS of 130 MPa and minimum UTS of 270-350 MPa (2nd column, see Table). It would have been obvious to one of ordinary skill in the art to use said high purity Ti alloy sheet taught by XP'686 as an external wall or reinforcing member of a building, because XP'686 teaches said alloy has good strength properties.

4. Claims 1, 4, 5, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'573 in view of JP'234.

JP'573 teaches a pure titanium alloy building material sheet comprising (in weight%): 0.01-0.06% Fe (100-600 ppm Fe, abstract, claim 1 of JP'573). Additionally, JP'573 teaches examples with 105-571 ppm Fe in Table 1, which fall within the presently claimed range of Fe. JP'573 does not mention the presence of Co or Nb, and therefore is held to teach substantially

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zero Co and Nb. JP'573 mentions the presence of minor amounts of Ni +Cr, however, it is unclear said amounts would substantially change the properties of said alloy. The transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. In re Herz, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976).

JP'573 does not mention the formation of an oxide film.

Concerning the limitation of an oxide film, JP'234 teaches a method of forming an oxide coating on a titanium alloy in order to prevent discoloration, wherein said oxide coating has a thickness of $\geq 20 \text{ \AA}$ (see examples, abstract), which overlaps the presently claimed limit of 170 \AA or below. It would have been obvious to one of ordinary skill in the art to form an oxide layer, as taught by JP'234, on the high purity Ti alloys taught by JP'234, because JP'234 teaches that said thin oxide layer prevents discoloration for a long period of time (abstract).

Concerning the instant pickling step and heating time minimum (cl.1) as well as heating without a vacuum (cl. 19), though the prior art does not specify the instant product by process steps, it is well settled that a product-by-process claim defines a product, and that when the prior art discloses a product substantially the same as that being claimed, differing only in the manner by which it is made, the burden falls to applicant to show that any process steps associated therewith result in a product materially different from that disclosed in the prior art. See MPEP 2113. Because the prior art teaches a product substantially the same as the presently claimed Ti alloy product with an oxide layer, then it is held that the combination of JP'573 and JP'234 have created a prima facie case of obviousness of the presently claimed invention.

Concerning claims 17 and 18, JP'573 teaches said high purity Ti alloy is used as a building material, such as roofing and outer wall material (see [0001]). Therefore, JP'573 meets the instant limitation of an external wall or reinforcing member of a building.

Response to Amendment/Arguments

5. In the response November 21, 2006 applicant amended claims 1, 4, 5, 17, 18, and added new claim 19, and submitted various arguments traversing the rejections of record.
6. Applicant's argument that the present invention is allowable over the prior art of record because the prior art does not teach or suggest the presently claimed limitation of a surface oxide substantially as presently claimed has not been found persuasive. As stated above, JP'234 teaches motivation for selecting the instant oxide layer thickness.
7. Applicant's argument that the present invention is allowable over the prior art of record because the cited prior art fails to teach structural features implied by instant process steps of providing improved secular discoloration resistance has not been found persuasive. Applicant has not provided a clear nexus between the instant process steps and unexpectedly superior behavior/ secular discoloration resistance that clearly distinguishes the instant product by process from the prior art of record.
8. Applicant's argument that the present invention is allowable over the prior art of record because the claimed product by process is distinct from that of the prior art has not clearly been found persuasive. Applicant has not clearly shown that the instant process steps result in a product materially different/unexpectedly superior than the prior art. More specifically, applicant argues the instant heat treating process produces a ΔE value superior to heating time outside a preferred value (argues process P Q R in spec exhibits inferior color difference $\Delta E^* > 5$).

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However, the ΔE values in Table 4 for P Q R range 0.6-0.7 (which are <5 , not >5). It is unclear that applicant has shown a product materially different/unexpectedly superior to the prior art.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCM
February 20, 2007

